

# Atlantic Richfield Company

**Roy I. Thun**  
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May 20, 2009

Ms. Nadia Hollan Burke  
Remedial Project Manager  
U.S. Environmental Protection Agency - Region 9  
75 Hawthorne Street, SFD-8-2  
San Francisco, California 94105

**Subject: Response to EPA April 27, 2009 Comments on the November 12, 2008 Revision of the Quality Assurance Project Plan (QAPP; Revision 4) and Submittal of the Updated QAPP (Revision 5) for the Yerington Mine Site; Administrative Order for Remedial Investigation and Feasibility Study, EPA Docket No. 9-2007-0005**

Dear Ms. Hollan Burke:

The Atlantic Richfield Company (ARC) has prepared the attached responses to comments on the November 12, 2008 revision to the Quality Assurance Project Plan (QAPP; Revision 4) for the Yerington Mine Site (Site). Comments were provided by the U.S. Environmental Protection Agency - Region 9 (EPA) to ARC on April 27, 2009. ARC appreciates this opportunity to respond to EPA's comments, and looks forward to EPA's review and approval of the responses and the attached revised QAPP (Revision 5).

Per your request, ARC has produced a limited number of hard copies of the revised QAPP, and has posted an electronic copy in the Anaconda Document Library (SharePoint Partners Website <http://38.223.231.33/sites/epanevada/>) developed for EPA by TetraTech. Copied recipients of this submittal letter (sent via e-mail) can either obtain the revised QAPP via the SharePoint Partners Website, or request a hard copy from Brown and Caldwell (775-883-4118).

If you have any questions regarding ARC's attached responses or the updated QAPP (Revision 5), please contact me at 661-287-3855 or via e-mail ([roy.thun@bp.com](mailto:roy.thun@bp.com)).

Sincerely,



Roy Thun  
Environmental Business Manager



Ms. Nadia Hollan Burke  
U.S. Environmental Protection Agency – Region 9  
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cc:

Dave Seter (EPA)  
Tom Olsen (BLM) - hard copy  
Paul Meyer (BLM) - via CD  
John Krause (BIA) - via CD  
Joe Sawyer (NDEP) - hard copy  
Lyon County Library System - hard copy  
TetraTech/EPA Anaconda Document Library  
Justin Whitesides (YPT)  
Edmund Reymus (Walker River Tribe)  
John Batchelder (BP)  
Jim Chatham (BP)  
James Lucari (BP)  
Chuck Zimmerman (BC)  
Guy Graening (BC)  
Linda Henry (BC)  
Matt Arno (Foxfire)  
Les Williams (Integral)  
Rich Curley (Curley and Associates, LLC)  
Rock J. Vitale (Environmental Standards, Inc.)  
Victor Early (TetraTech)  
Ken Greene (CH2MHill)

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**May 20, 2009 ARC Responses to EPA Comments on the**  
**November 12, 2008 Quality Assurance Project Plan (Revision 4)**

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**EPA Comments on Tables 3-1 through 3-5:**

1. *It should be noted that the May 20, 2008 Regional Screening Level (RSL) Table cited in this version of the QAPP has been superseded by the September 2008 RSL Table. In EPAs November 3, 2008 e-mail to ARC regarding the QAPP screening values, EPA had directed ARC to use the September 2008 RSLs. ARC needs to revise the QAPP to comply with EPAs direction on this issue.*

**ARC Response:** May 20, 2008 RSLs have been changed to the September 12, 2008 RSLs in the attached revised QAPP. In addition, the references citing the May 20, 2008 RSLs in the table notes below Tables 3-1 through 3-3 have been changed to cite the September 12, 2008 RSLs.

2. *Comments 3 through 6 of this memorandum cross-reference the September 2008 RSLs and 2004 PRGs, and not the May 2008 RSLs.*

**ARC Response:** Please see the response to comment no. 1.

3. *Review of QAPP Tables 3-1 through 3-5 has identified a number of entries that require revision. Required edits are summarized at the end of this memorandum in attachment Tables 1, 2, and 3. The QAPP will not receive final approval until the corrections summarized in Tables 1, 2, and 3 are made.*

| <b>TABLE 1</b>   |                       |  |  |   |                      |                 |
|--|-----------------------|--|--|---|----------------------|-----------------|
| <i>Required Edits for Aqueous Screening Values</i>             |                       |  |  |   |                      |                 |
| <i>ARC QAPP Table 3-1, Anaconda-Yerington Copper Mine Site</i> |                       |  |  |   |                      |                 |
| <b>Contaminant</b>   | <b>MDL<br/>(µg/L)</b> | <b>Existing<br/>Screening<br/>Value<br/>(µg/L)</b> | <b>MDL<br/>Exceeds<br/>Screening<br/>Level</b> | <b>Updated<br/>Screening<br/>Value<br/>(µg/L)</b> | <b>Citation</b>      | <b>Comments</b> |
| <i>Carbon<br/>Tetrachloride</i>                                | <i>0.28</i>           | <i>0.20</i>  | <i>YES</i>                                     | <i>No Change</i>                                  | <i>Sept_2008 RSL</i> | <i>None</i>     |
| <i>Chloroform</i>  | <i>0.33</i>           | <i>0.19</i>  | <i>YES</i>                                     | <i>No Change</i>                                  | <i>Sept_2008 RSL</i> | <i>None</i>     |
| <i>1,2-Dibromo-3-<br/>chloropropane</i>                        | <i>0.97</i>           | <i>0.00032</i>                                     | <i>YES</i>                                     | <i>No Change</i>                                  | <i>Sept_2008 RSL</i> | <i>None</i>     |
| <i>1,2-Dibromoethane</i>                                       | <i>0.40</i>           | <i>0.0065</i>                                      | <i>YES</i>                                     | <i>No<br/>Change</i>                              | <i>Sept_2008 RSL</i> | <i>None</i>     |
| <i>1,2-Dichloroethane</i>                                      | <i>0.28</i>           | <i>0.15</i>  | <i>YES</i>                                     | <i>No<br/>Change</i>                              | <i>Sept_2008 RSL</i> | <i>None</i>     |
| <i>Napthalene</i>  | <i>0.41</i>           | <i>0.14</i>  | <i>YES</i>                                     | <i>No<br/>Change</i>                              | <i>Sept_2008 RSL</i> | <i>None</i>     |
| <i>1,1,2,2-<br/>Tetrchloroethane</i>                           | <i>0.30</i>           | <i>0.067</i>                                       | <i>YES</i>                                     | <i>No<br/>Change</i>                              | <i>Sept_2008 RSL</i> | <i>None</i>     |

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| <b>TABLE 1</b>                       |                          |                          |                        |                           |  |   |
|--------------------------------------|--------------------------|--------------------------|------------------------|---------------------------|--|---|
| <i>Tetrachloroethene</i>             | <i>0.32</i>              | <i>0.11</i>              | <i>YES</i>             | <i>No Change</i>          | <i>Sept_2008 RSL</i>                           | <i>None</i>   |
| <i>1,1,2-Trichloroethane</i>         | <i>0.30</i>              | <i>0.24</i>              | <i>YES</i>             | <i>No Change</i>          | <i>Sept_2008 RSL</i>                           | <i>None</i>   |
| <i>Vinyl Chloride</i>                | <i>0.40</i>              | <i>0.016</i>             | <i>YES</i>             | <i>No Change</i>          | <i>Sept_2008 RSL</i>                           | <i>None</i>   |
| <i>2,4-Dichlorophenol</i>            | <i>0.20</i>              | <i>0.20</i>              | <i>EQU</i>             | <i>No Change</i>          | <i>Canadian Water Quality Guidelines, 2007</i> | <i>MDL = screening value</i>  |
| <i>3&amp;4 Methylphenol (cresol)</i> | <i>5.0</i><br><i>5.0</i> | <i>180</i><br><i>180</i> | <i>NO</i><br><i>NO</i> | <i>1800</i><br><i>180</i> | <i>Sept_2008 RSL</i>                           | <i>Methylphenol (cresol) listed on the Sept_2008 RSL Table indicate meta (3) and para (4) positions have different RSL concentrations. These should be listed as two individual isomers with corresponding RSL.</i> |
| <i>Bis(2-Chloroethyl)ether</i>       | <i>0.10</i>              | <i>0.012</i>             | <i>YES</i>             | <i>No Change</i>          | <i>Sept_2008 RSL</i>                           | <i>None</i>   |
| <i>3,3'-Dichlorobenzene</i>          | <i>0.40</i>              | <i>0.15</i>              | <i>YES</i>             | <i>No Change</i>          | <i>Sept_2008 RSL</i>                           | <i>None</i>   |
| <i>Hexachlorobenzene</i>             | <i>0.10</i>              | <i>0.042</i>             | <i>YES</i>             | <i>No Change</i>          | <i>Sept_2008 RSL</i>                           | <i>None</i>   |
| <i>N-Nitro-di-n-propylamine</i>      | <i>0.10</i>              | <i>0.0096</i>            | <i>YES</i>             | <i>No Change</i>          | <i>Sept_2008 RSL</i>                           | <i>None</i>   |
| <i>Benzo(a)pyrene</i>                | <i>0.009</i>             | <i>0.0029</i>            | <i>YES</i>             | <i>No Change</i>          | <i>Sept_2008 RSL</i>                           | <i>None</i>   |
| <i>Benzo(b)fluoranthene</i>          | <i>0.05</i>              | <i>0.029</i>             | <i>YES</i>             | <i>No Change</i>          | <i>Sept_2008 RSL</i>                           | <i>None</i>   |
| <i>Dibenzo(a,h)anthracene</i>        | <i>0.05</i>              | <i>0.0029</i>            | <i>YES</i>             | <i>No Change</i>          | <i>Sept_2008 RSL</i>                           | <i>None</i>   |
| <i>Indeno (1,2,3-cd)pyrene</i>       | <i>0.05</i>              | <i>0.029</i>             | <i>YES</i>             | <i>No Change</i>          | <i>Sept_2008 RSL</i>                           | <i>None</i>   |
| <i>MCPA</i>                          | <i>64</i>                | <i>18</i>                | <i>YES</i>             | <i>No Change</i>          | <i>Sept_2008 RSL</i>                           | <i>None</i>   |

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| TABLE 1                                |        |                      |     |           |   |   |
|--|--------|----------------------|-----|-----------|---|---|
| MCCP                                   | 46     | 37                   | YES | No Change | Sept_2008 RSL                           | None  |
| Arsenic                                | 0.70   | 0.045                | YES | No Change | Sept_2008 RSL                           | None  |
| Boron (Method 6020)                    | 10     | 1.6                  | YES | No Change | Suter and Tsao, 1996                    | None  |
| Boron (Method 200.7)                   | 20     | 1.6                  | YES | No Change | Suter and Tsao, 1996                    | None  |
| Silver                                 | 0.30   | 0.1                  | YES | No Change | Canadian Water Quality Guidelines, 2007 | None  |
| Gross Alpha                            | 1pCi/L | NA                   | NO  | 15 pCi/L  | Dec. 7, 2007 Radionuclides Rule         | Listed as NA on Table 3-1. Should be updated. |
| Gross Beta                             | 1pCi/L | NA                   | NO  | 50 pCi/L  |   |   |
| NO SCREENING VALUE CURRENTLY AVAILABLE |        |                      |     |           |   |   |
| Bromochloromethane                     |        | Benzo(g,h,i)perylene |     |           | Thorium-232                             |   |
| Dichlorofluoromethane                  |        | Endrin aldehyde      |     |           | Thorium-232-Activity                    |   |
| 2,2-Dichloropropane                    |        | Endrin ketone        |     |           | Sulfate                                 |   |
| 1,1-Dichloropropene                    |        | Alpha-Chlordane      |     |           | Phosphate (ortho)                       |   |
| p-Isopropyltoluene                     |        | Gamma-Chlordane      |     |           | Phosphorus, total                       |   |
| TPH-Diesel                             |        | Dichloroprop         |     |           | Alkalinity, Bicarbonate                 |   |
| TPH-Motor Oil                          |        | Calcium              |     |           | Alkalinity, Carbonate                   |   |
| TPH-Gasoline                           |        | Magnesium            |     |           | Alkalinity, Hydroxide                   |   |
| 4-Chloro-3-methylphenol                |        | Phosphorous          |     |           | Total Dissolved Solids (TDS)            |   |
| 2-Nitrophenol                          |        | Potassium            |     |           | Total Organic Carbon                    |   |
| 4-Chlorophenyl phenyl ether            |        | Sodium               |     |           | (TOC)                                   |   |
| Acenaphthylene                         |        | Thorium              |     |           | Total Solids (TS)                       |   |

| <b>TABLE 2</b>  |                   |  |                                    |                                       |                 |                         |
|---|-------------------|--|------------------------------------|---------------------------------------|-----------------|-------------------------|
| <i>Required Edits for Soil/Sediment Screening Values</i>        |                   |  |                                    |                                       |                 |                         |
| <i>ARC QAPP Tables 3-2, Anaconda-Yerington Copper Mine Site</i> |                   |  |                                    |                                       |                 |                         |
| <i>Contaminant</i>  | <i>MDL (µg/L)</i> | <i>Existing Screening Value (µg/L)</i> | <i>MDL exceeds Screening Level</i> | <i>Updated Screening Value (µg/L)</i> | <i>Citation</i> | <i>Cause for Change</i> |

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| <b>TABLE 2</b>   |   |                        |          |  |                         |  |
|--|---|------------------------|----------|--|-------------------------|--|
| <i>m</i> -Xylene   | 0.80  | 4,300,000              | NO       | 4,500,000  | Sept_2008 RSL           | Updated to reflect Sept_2008 RSL   |
| 3&4 Methylphenol   | 80<br>80  | 3,100,000<br>3,100,000 | NO<br>NO | No Change<br>310,000   | Sept_2008 RSL           | Methylphenol (cresol) listed on the Sept_2008 RSL Table indicate meta (3) and para (4) positions have different RSL concentrations. These should be listed as two individual isomers with corresponding RSL. |
| <i>N</i> -Nitroso-di- <i>n</i> -propylamine  | 70  | 69                     | YES      | No Change  | Sept_2008 RSL           | None   |
| Boron  | 2.1   | 0.50                   | YES      | No Change  | Efroymsen, et. al, 1997 | None   |
| <b>NO SCREENING VALUE CURRENTLY AVAILABLE</b>  |   |                        |          |  |                         |  |
| Bromochloromethane<br>Dichlorofluoromethane<br>2,2-Dichloropropane<br>1,1-Dichloropropene<br><i>p</i> -Isopropyltoluene<br>4-Chloro-3-methylphenol<br>2-Nitrophenol<br>4-Chlorophenyl phenyl ether | Acenaphthylene<br>Benzo(g,h,i)perylene<br>Endrin Aldehyde<br>Endrin ketone<br>Alpha-Chlordane<br>Gamma-Chlordane<br>Dichloroprop<br>Calcium |                        |          | Magnesium<br>Potassium<br>Sodium<br>Thorium<br>Gross Alpha<br>Gross Beta |                         |  |

| <b>TABLE 3</b>  |                                   |  |  |   |                 |                 |
|---|-----------------------------------|--|--|---|-----------------|-----------------|
| <i>Required Edits for Air Screening Values</i>                  |                                   |  |  |   |                 |                 |
| <i>ARC QAPP Tables 3-3, Anaconda-Yerington Copper Mine Site</i> |                                   |  |  |   |                 |                 |
| <b>Contaminant</b>  | <b>MDL<br/>(µg/m<sup>3</sup>)</b> | <b>Existing<br/>Screening<br/>Value<br/>(µg/m<sup>3</sup>)</b> | <b>MDL<br/>exceeds<br/>Screening<br/>Level</b> | <b>Updated<br/>Value<br/>(µg/m<sup>3</sup>)</b> | <b>Citation</b> | <b>Comments</b> |

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| <b>TABLE 3</b>                                |                   |               |  |                      |                      |   |
|---|-------------------|---------------|--|----------------------|----------------------|---|
| <i>Chromium</i>                               | <i>.0074</i>      | <i>.0002</i>  | <i>YES (for<br/>EPA<br/>method<br/>6020)</i> | <i>.00016</i>        | <i>2004 PRG</i>      | <i>Oct 2004 PRG is<br/>cited but incorrect<br/>value used</i> |
| <i>Cobalt</i>                                 | <i>.0074</i>      | <i>.00027</i> | <i>YES</i>                                   | <i>No<br/>Change</i> | <i>Sept_2008 RSL</i> | <i>None</i>   |
| <b>NO SCREENING VALUE CURRENTLY AVAILABLE</b> |                   |               |  |                      |                      |   |
| <i>Calcium</i>                                | <i>Molybdenum</i> |               | <i>Zinc</i>                                  |                      |                      |   |
| <i>Copper</i>                                 | <i>Selenium</i>   |               | <i>Sulfate</i>                               |                      |                      |   |
| <i>Iron</i>                                   | <i>Silver</i>     |               | <i>Gross Alpha</i>                           |                      |                      |   |
| <i>Lead</i>                                   | <i>Sodium</i>     |               | <i>Gross Beta</i>                            |                      |                      |   |
| <i>Magnesium</i>                              | <i>Vanadium</i>   |               | <i>Radionuclides</i>                         |                      |                      |   |

**ARC Response:** The required edits specified above have been made to Tables 3-1 through 3-3 in the attached revised QAPP.

- EPA acknowledges that there are a number of constituents included on the routine analyte lists for various analytical methods that currently do not have standard screening values (ecological or human health) available. To address the absence of numeric screening values and where these values are not available, ARC should note in place of such criteria "NCA" for Not Currently Available in Tables 3-1 through 3-5. There should be either a numeric screening value or "NCA" (i.e., no blanks) in every cell of each of these tables.*

**ARC Response:** The letters "NCA" standing for "not currently available" have been added to the Screening Value columns in Tables 3-1 through 3-5 for analytes that currently do not have standard ecological or human health screening values available in the attached revised QAPP. In addition, the letters "NCA" have been defined as "not currently available" in the table notes below Tables 3-1 through 3-5.

- Table 3-4 appears to be missing entries for calcium, iron, magnesium, potassium, and sodium. In order to be consistent with the information provided on the other tables, these five constituents should be added to Table 3-4.*

**ARC Response:** The analytes calcium, iron, magnesium, potassium, and sodium have been added to Table 3-4 in the revised QAPP.

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**EPA Comment on Section 3.2.7 (Data Sensitivity):**

- *Section 3.2.7 states that all laboratory method detection limits (MDLs) are lower than project screening levels. EPAs review noted that there are, in fact, a number of instances where this is not the case. Attachment Tables 1, 2, and 3 summarize these exceptions. ARC needs to revise Section 3.2.7 so that it correctly states that there are instances where the laboratory MDLs are higher than project screening levels. The impacted constituents should be clearly identified on Tables 3-1 through 3-3 and listed in Section 3.2.7. In addition, ARC needs to describe in the text of the QAPP how non-detect results will be interpreted for those constituents with MDLs higher than their respective screening levels.*

*It should be noted that EPA recognizes that these apparent “data gaps” exist as a result of current analytical technology limitations. However, it is imperative that: 1) the existence of data gaps is acknowledged in the planning document; 2) the impacted constituents are clearly identified; 3) a process for interpreting impacted non-detect results is specified; and 4) subsequent reports clearly identify these resulting data gaps.*

**ARC Response:** Section 3.2.7 has been revised to state that there are instances where the laboratory MDLs are higher than project screening levels in the revised QAPP. In addition, the impacted constituents are clearly identified on Tables 3-1 through 3-3 and listed in Section 3.2.7. The following sentence has been added to Section 3.2.7 in the attached revised QAPP to describe how “not-detected” results will be interpreted for those constituents with MDLs higher than their respective screening levels: “Not-detected” results obtained for analytes with method detection limits above the minimum screening level will be addressed in the RI for each specific OU in nature and extent to discuss the potential that the analyte is present given historical use of the OU, whether the minimum screening level is below background concentrations, and appropriate methods to assess potential risk.”

**EPA Comment on Section 11.3 (Data Submittals):**

- *The last sentence in Section 11.3 appears to be truncated. The sentence should be reviewed and revised as appropriate.*

**ARC Response:** The sentence “Electronic data will be archived for a minimum period of five years, or longer in order to meet the requirements stipulated in the.” in Section 11.3 has been revised to state “Electronic data will be archived for a minimum period of five years, or longer in order to meet the requirements stipulated in the Order.” in the revised QAPP.

**EPA Comment on Field SOPs:**

- *Two standard operating procedures (SOPs) appear to be in draft form and in need of finalization. SOPs 21 and 22 still contain editorial notations and redline strikeouts. The SOPs should be reviewed and finalized in the next draft of the QAPP.*

**ARC Response:** SOPs 21 and 22 have been reviewed and finalized, and are included in the attached revised QAPP.